

CHAPTER 5 - HAZARDOUS MATERIALS

The BLM's goals under this program are to effectively manage hazardous materials on the public lands to protect the health and safety of public land uses and stewards, protect the natural and environmental resources, minimize future hazardous and related risks, costs and liabilities, and to mitigate physical hazards in compliance with all applicable laws, regulation, and policy. Listed below are several of the more common environmental laws in place. The BLM follows its national, state, and local contingency plans as they apply to emergency responses. These plans are also consistent with federal and state laws and regulations.

Hazardous materials are generally defined as a usable product or substance that may cause harm to humans, natural resources, or the environment when spilled, released, or contacted. Hazardous materials are used in every day activities and may be in the form of a solid, liquid, or gas. Regardless of their physical state, hazardous materials may be toxic, flammable, combustible, reactive, and/or corrosive. When used and stored properly, associated risks are minimized or eliminated

Hazardous wastes can be described as discarded, abandoned, inherently waste-like, released, and/or spilled hazardous materials or substances.

Physical hazards that pose a threat to the health and safety of humans or animals (e.g. abandoned mine sites, abandon structures, dams, earthquakes, floods, discarded solid waste, etc.) are responsibilities under this program.

5.1 RESOURCE OVERVIEW

Hazardous materials problems within the planning area can result from programs conducted by state and local governments, by local businesses and industries, and/or by illegal dumping of hazardous materials on lands administered by the BLM. There are no approved hazardous materials dumps or repositories within the Moab FO.

Known hazardous waste generators and transporters in the Moab FO are listed in Table 5-1.

Table 5-1. Moab Field Office Hazardous Waste Facilities or Sites		
Facility	Type of Site	County
TWD	RCRA - transporter	Grand
Canyonlands National Park Headquarters	Conditionally Exempt Small Generator	Grand
United Parcel Service	RCRA - generator	Grand
BLM Moab Field Office	Conditionally Exempt Small Generator	Grand
Earth Studio	RCRA – small generator	Grand
AT&T Crescent Junction	RCRA	Grand
AT&T Moab	RCRA	San Juan
Northwest Pipeline Meter Station	RCRA	Grand
Northwest Pipeline (Cisco)	RCRA – small generator	Grand
Northwest Pipeline Compressor	RCRA – small generator	Grand
Homestake LaSal Mine	RCRA	San Juan
Former Chevron Gas Station SS#7-2959	RCRA – small generator	Grand

Table 5-1. Moab Field Office Hazardous Waste Facilities or Sites		
Facility	Type of Site	County
USGS Canyonlands Field Station	Conditionally Exempt Small Generator	Grand
Hecla Mine	RCRA	Grand
LaSal Snowball Mine	RCRA – small generator	Grand
Polar Mesa Property (Atlas Minerals)	RCRA	Grand
Rio Algom Mining Corporation	RCRA	Grand
Redd Shaft	RCRA	San Juan
Southern Paving Company	RCRA – used oil program	Grand
SPTCO Thompson Yard	RCRA – small generator	Grand
Texasgulf Cane Creek Mine	Conditionally Exempt Small Generator	Grand
Tom Brown Incorporated	RCRA – small generator	Grand
Wep Robidoux Comp Station	Conditionally Exempt Small Generator	Grand
Wep Westwater Comp	Conditionally Exempt Small Generator	Grand
Atlas Minerals – Mill Site	CERCLIS (Superfund)	Grand
Thompson Uranium Ore	CERCLIS (Superfund)	Grand
Source: EPA 2003		
RCRA = Resource Conservation and Recovery Act;; CERCLIS = Comprehensive Environmental Response Compensation Liability Information System		

5.1.1 Oil and Gas Drilling Operations

Oil and gas drilling operations are a major user and producer of hazardous materials within the Moab FO. Potentially hazardous materials or substances typically used in drilling and completion operations are listed in Table 5-2. These substances are contained by the operator and disposed of in a licensed commercial disposal facility. Oil and gas operations are exempt from the Resource Conservation and Recovery Act (RCRA) as oil or gas products becomes subject to RCRA only after they have been purchased from the oil and gas operator (Jones, Personal Communication 2003).

Table 5-2. Typical hazardous materials used in well drilling and completion operations.	
Hazardous material or substance	Use
Sodium hydroxide	pH control
Diesel fuel	Engine fuel while drilling
Methanol	Surfactant
Hydrochloric acid	Acidizing agent
Acetic acid	Acidizing agent
Formaldehyde	Acidizing
Ethylene glycol	Coolant/dehydration
Benzene, hexane	Natural gas condensate
Lead, cobalt, barium, and manganese compounds	Paints (various types)
Zinc and copper compounds	Grease and lubrication oil
Propane	Fuel
Source: BLM 2003	

If spilled or released into the environment, petroleum products can be a source of hazardous materials. The toxicity of petroleum products is related to the concentration of their aromatic constituents (i.e., benzene, ethylbenzene, xylene, toluene, and naphthalenes). These hydrocarbons are water-soluble and can be acutely toxic to aquatic life if allowed to enter water (BLM 2001).

5.1.2 Natural Gas Pipelines

There are several natural gas pipelines within the Moab FO. Williams Pipeline operates the largest pipeline within the Moab FO, which extends approximately 88 miles from the town of Thompson Springs near Interstate 70, south along Highway 191 through Moab and Spanish Valley, and along Lisbon Valley to the San Juan County/Colorado border. There are also many other smaller pipeline operators within the management area. Hazardous materials associated with natural gas pipelines include diesel fuel emissions from compressor stations, and benzene and hexane from natural gas condensates.

5.1.3 Mining Operations

Mining operations are currently a minor user and producer of hazardous materials within the Moab FO. Potentially hazardous materials or substances typically used in mining and processing operations may include those items listed in Table 5-2. As with oil and gas operations, these substances are contained by the operator and disposed of in a licensed commercial disposal facility. Performance standards for mining operations, including environmental standards, are regulated by 43 CFR 3809.420, RCRA regulations in 40 CFR 240-282, and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (see Section 5.2 below). Additionally, mine site reclamation must address hazardous materials to comply with UCA-40-8-2(3).

5.1.3.1 Abandoned Mine Site Hazards

Abandoned mine sites in the planning area present potential hazards to health and human safety. The BLM, the U.S. Forest Service (USFS), and the National Park Service (NPS) have conducted inventories of abandoned mine sites and some remediation, such as stabilizing sites, closing mine openings, and/or reclaiming mine-related land disturbances. In the Moab FO, the highest concentrations of mine sites that have been inventoried but not yet reclaimed are on the mesas and plateaus that surround the LaSal Mountains. Areas where abandoned mine inventories have not yet been conducted are predominantly on BLM and USFS administered public lands. The Utah Division of Oil, Gas and Mining (UDOGM) Abandoned Mine Reclamation Program (AMRP) has identified Lisbon Valley as a high priority area for abandoned mine hazards inventory (UDOGM 2002).

The health and safety hazards posed by abandoned mines are numerous. Open mines are unstable; mine adits (horizontal openings or tunnels) may collapse, internal supports may fail, and mine shafts (vertical openings) and winzes (vertical connections between adits) may be obstructed or unseen. Oxygen can be at lethally low concentrations and toxic gases can be at high concentrations or capable of displacing oxygen. Exposure to radiation in the mine atmosphere, particularly radon gas, can be a hazard, especially in abandoned uranium mines. Many abandoned mines in southern Utah are potential sources of radiation.

Water can be a hazard in flooded mines; shallow water can conceal winzes and sharp objects. Hazardous wastes, such as boxes or containers of explosives, and chemicals used in milling or drilling operations could be present. Illegal dumping of hazardous wastes within abandoned mines is also a possibility.

Mine structures and debris from mining activities often present a hazard to humans and wildlife. Mine waste dumps may have high levels of heavy metals and/or radioactive minerals that can erode into surface water or leach into groundwater.

The AMRP often conducts the inventory and/or reclamation of abandoned mine sites within the state of Utah. In the Moab FO planning area they have conducted reclamation on coal mines in the Book Cliffs, north of Crescent Junction and Green River. In collaboration with the USFS, the AMRP has closed mine openings in the Yellow Cat uranium mining area, east of Arches National Park and southeast of the town of Thompson Springs. Currently the Moab FO is conducting an assessment of five uranium mine sites in the LaSal Creek watershed east of Old LaSal on the south flanks of the LaSal Mountains. The purpose of this assessment is to evaluate and recommend any steps required for site stabilization, the removal of any hazardous materials and substances, and other actions necessary to protect human health and the environment. The expected completion of the assessment is 2004 with project implementation anticipated to begin in 2005. Additionally, the AMRP has identified Lisbon Valley as a high priority area for abandoned mine hazards inventory, and the Moab FO has identified the Browns Hole area as a priority area for abandoned mine hazards inventory and remediation.

5.1.3.2 Uranium Tailings

Located three miles northwest of Moab on the west bank of the Colorado River, the Atlas Mill uranium tailings site is the result of long-term uranium ore processing. The entire site covers approximately 400 acres, a portion of which is within the 100-year and 500-year floodplains of the Colorado River. The site is bisected by Moab Wash, an ephemeral stream that carries runoff during storms and snowmelt. The 130-acre mill tailings pile (containing approximately 11.9 tons of processed ore) is unlined and is contaminating soil, surface water, and ground water. Custody of the site was transferred to the U.S. Department of Energy (DOE) in 2001 for remediation and long-term stewardship (DOE 2003a). The DOE is preparing an EIS that will analyze the alternatives of capping the tailings in place or moving them to an off-site disposal area. Two areas are being considered for tailings disposal under the jurisdiction of the Moab FO: Klondike Flats and Crescent Junction. If a BLM location were selected, approximately two sections of land would be required for the disposal site. Transfer of the property to DOE would be under the authority of Section 102 of the Uranium Mill Tailings Radiation Control Act (UMTRCA).

The Green River Radioactive Materials Disposal Cell is a 6-acre long-term storage site for uranium tailings. Located one-half mile east of the town of Green River, the site contains materials relocated from nearby uranium production and concentration facilities. The site conforms to EPA standards, and the Nuclear Regulatory Commission (NRC) certified the disposal cell in July 1992. The disposal cell site is being managed under the DOE's Long-Term Surveillance and Monitoring (LTSM) Program in accordance with the approved site-specific plan. The DOE is responsible for the safety and integrity of the Green River site (DOE 2002a). The State of Utah acquired ownership of the land around the site in 1988 from Union Carbide; DOE owns the disposal cell site (DOE 2003b).

The Rio Algom uranium mill, located in Lisbon Valley, is an active site presently undergoing decommissioning by the NRC. It is expected that within the next five years, land ownership at this site will be transferred from private and BLM to DOE, consistent with the LTSM Program.

5.1.4 Storage Tanks

The presence and use of Aboveground Storage Tanks (AST) and Underground Storage Tanks (UST) are regulated by the EPA and administered by the State of Utah. It is the responsibility of the operator to understand and comply with the EPA regulations that became effective on December 22, 1998.

5.1.5 Landfills

Landfills are subject to regulation under the RCRA; a description of this regulation can be found in section 5.2 on Specific Mandates and Authority. There are two permitted landfills within the Moab FO: the Klondike Class I Landfill and the Moab Class IVb Landfill. Waste collection is mandatory within the city of Moab, but is not mandatory throughout Grand County.

The Klondike Class I Landfill is owned by Grand County and is jointly operated by the Solid Waste Special Service District #1 and a co-permitted contractor (Ksue Corporation). It is an 80-acre Class One sanitary landfill, which can accept household wastes, commercial wastes, and approved industrial wastes from a contracted garbage hauler (Bob's Sanitation) who collects refuse from Moab, Castle Valley, Thompson Springs, Crescent Junction, and other unincorporated areas of the county. Bob's Sanitation also operates a transfer station, located approximately two miles south of town, which accepts waste from households throughout Grand County. No direct hauling by residential users is permitted at the Klondike Landfill.

The Moab Class IVb Landfill is jointly owned by Moab City and Grand County, and is operated by the Solid Waste Special Service District #1. It is a 50-acre landfill which accepts only construction debris and yard waste. The waste is then placed at the landfill as fill for final grading as part of an approved closure plan (Swanke, Personal Communication, 2003).

Shooting ranges could become a source of contamination; however, no ranges have been constructed on public land within the planning area. The ranges that exist on private lands are managed under the Recreation and Public Purposes Act, which designates these areas as disposal sites (Von Koch, Personal Communication 2003).

5.1.6 Illegal Dumps

The remoteness of lands within the Moab FO creates an opportunity for illegal dumping of hazardous materials. This refuse could originate from a variety of sources, including illegal drug labs. When these types of sites are encountered the hazardous materials administrator hires a contractor to remove the waste from the area and conduct any necessary reclamation (Engleman, Personal Communication, 2003). If responsibility for the illegal dumping can be determined, then the information is reported to the appropriate authorities for prosecution.

5.1.7 Small Businesses

The types of small businesses that generate or use hazardous materials include automotive, dry cleaning, printing, and hospitals. These operations are regulated by the EPA and administered by the State of Utah. It is the responsibility of the business owner to understand and comply with EPA regulations.

5.1.8 Missile Testing Site

The U.S. Army conducted missile testing at the Utah Launch Complex (part of the White Sands Missile Range) until 1974 at a site one-half mile east of the Green River and one mile southeast of the town of Green River. The Department of Defense (Army) currently has jurisdiction over the abandoned test facility, which is adjacent to the Green River uranium disposal cell (see above). The DOE is currently monitoring this area and if the site is found to be contaminated, the DOE will assume responsibility for remediation.

5.1.9 Transportation Routes

Major transportation routes through the planning area include U.S. Route 191, Interstate Route 70, and State Route 46. These roads and several other local routes can be used to transport hazardous materials.

5.2 SPECIFIC MANDATES AND AUTHORITY

The Utah Division of Solid and Hazardous Waste has regulatory authority over solid and hazardous waste. Management is accomplished through the Moab FO and through national contingency plans (see below).

Comprehensive Environmental Response, Compensation, Liability Act of 1980 (CERCLA or Superfund Amendments and Reauthorization Act [SARA]) – This federal legislation created a “superfund” to clean up uncontrolled or abandoned hazardous waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment.

Resource Conservation and Recovery Act of 1976 (RCRA) – This federal legislation gives the EPA the authority to control hazardous materials from production to its being discarded as waste. This authority includes hazardous materials generation, transportation, treatment, storage, and disposal.

Superfund Amendment Reauthorization Act (SARA) – This federal legislation authorized CERCLA to continue cleanup activities around the country. Several site-specific amendments, definitions, clarifications, and technical requirements were added to the legislation, including additional enforcement authorities.

Toxic Substances Control Act of 1976 (TSCA) – Federal legislation enacted by Congress to give EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States.

40 CFR 100-400 – A suite of federal regulations addressing water quality, pesticide control, waste regulation and control, and toxic waste cleanup.

29 CFR 1910 Occupational Safety and Health Standards – This federal regulation establishes industry standards for worker safety and health.

49 CFR 100-185 – Federal regulations that control the transportation of hazardous materials.

43 CFR 3160 Onshore Oil and Gas Operations – This federal regulation governs operations associated with the exploration, development and production of oil and gas deposits from leases issued or approved by the U.S., restricted Indian land leases and those under the jurisdiction of the Secretary of the Interior.

Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as amended – The federal Act governs the environmental restoration of uranium production and mill tailings sites.

BLM Manuals MS-1703 *Hazardous Materials Management*, H-1703-1 *CERCLA Response Actions Handbook*, and H-2101-4 *Pre-Acquisition Environmental Site Assessments*.

5.3 CURRENT MANAGEMENT PRACTICES

Under the current RMP, hazardous materials handling, storage, transport, and emergency response are not specifically addressed. However, the mandates, authorities, and handbooks described above in section 5.2 and elsewhere in this AMS provide management guidelines, objectives, and management actions that ensure that the Moab FO hazardous materials program is in compliance with applicable laws and regulations.

Management objectives identified within these documents include:

- Protecting public health, safety, and the environment on public lands;
- Identifying and controlling hazards or threats to human health and the environment from hazardous materials releases on public lands;
- Ensuring that activities on public lands comply with applicable federal, state, and local laws, regulations, policies, and procedures;
- Preventing hazardous waste contamination by BLM-authorized actions; and
- Maintaining land health through assessment, cleanup, and reclamation of contaminated sites.

Management actions include:

- Determining, through a pre-acquisition environmental assessment, the nature and extent of potential liability resulting from hazardous substances associated with property during acquisitions and disposals;
- Reporting, securing, and cleaning up public lands within the Moab FO planning area that are contaminated with hazardous wastes in accordance with federal laws, regulations, and contingency plans;
- Identifying parties responsible for hazardous waste contamination who are liable for cleanup and resource damage costs;
- Identifying appropriate mitigation for surface disturbing activities associated with hazardous materials and waste management; and

- Following precautions to prevent hazardous waste releases into the environment, and providing adequate warning to potentially affected communities should such releases occur.

5.3.1 Hazardous Material Incident Contingency Plan

The BLM Moab FO has an outdated Hazardous Material Incident Contingency Plan (HMICP) that is in the process of being revised. Oil and gas drilling operations are not required to have HMICPs unless they are producing hydrogen sulfide (H₂S) (a byproduct of the resource extraction process). If they are producing H₂S they must maintain an HMICP, pursuant to Oil and Gas Order Number Six (Jones, Personal Communication, 2003). This plan outlines the procedures that should be followed when hazardous materials are discovered on BLM lands and identifies who should be contacted.

5.3.2 Hazard Communication Plan

The Moab FO has a Hazard Communication (HAZCOM) Program plan, effective January 2002 (BLM 2002). The purpose of this program is to ensure that all employees and volunteers in the Moab FO are protected from exposure to hazardous materials through compliance with administrative and physical controls stipulated in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

The HAZCOM program outlines procedures for employees and contractors to use when handling or storing potentially hazardous materials. It describes proper storage, labeling, Material Safety Data Sheet (MSDS) obtainment, and hazardous materials training (Engleman, Personal Communication, 2003). The Moab FO has an appointed safety officer whose responsibilities include acting as HAZCOM coordinator. The HAZCOM coordinator ensures compliance with the program at all facilities and locations within the Moab FO.

5.3.3 Environmental Site Assessments

Environmental Site Assessments (ESAs) are conducted for all land disposals, exchanges or acquisitions involving the BLM. The primary purpose of an ESA is to ensure that the parcel of land be considered for transfer of ownership is not contaminated with hazardous wastes or substances from past or present uses. This meets the requirements under current laws and regulation of the Innocent Land Owner Clause. An ESA can be as simple as an on the ground inspection, a record review of land uses and interviews with land owners or land users, and as comprehensive as a full site characterization and clean up. The level of analysis used is considered on a case-by-case basis, as appropriate.

5.4 CONSISTENCY WITH NON-BUREAU PLANS

Grand County, San Juan County, the USFS, and the NPS are subject to the same hazardous materials laws and regulations as other state and federal agencies.

5.4.1 Counties

Grand County does not specifically address hazardous waste management in its updated General Plan (Grand County 2004), but Public Lands Policy Statement 15 promotes "cooperation with

federal and state agencies and neighboring counties to implement control measures on public lands where illegal dumping and littering are occurring."

The San Juan County Master Plan, in its policy and goals statement, identifies waste management as a human and community service priority, and the county recognizes its regulatory commitment to waste management (San Juan County 1996).

5.4.2 National Park Service (NPS)

The NPS has management guidelines that include management of hazardous wastes. The guidelines describe the proper storage, transport, emergency response procedures, and disposal protocols. The NPS Policy and Program Objectives require park managers to "make efforts to avoid hazardous material incidents and to control or minimize them should they occur..." (NPS 2004).

5.4.3 U.S. Forest Service (USFS)

The USFS has established policies and procedures for hazardous materials management, described in Forest Service Manual 2100, Chapter 2160 – Hazardous Materials Management. The manual is intended "to provide managers with an overall program description, set forth Forest Service policy, and supply a central location for hazardous materials management direction" (USFS 1994).

5.5 ISSUES OR CONCERNS

Illegal hazardous waste dumping in the planning area could potentially contaminate surface and ground water, degrade soil, vegetation, and wildlife resources, and become a source of dust-borne air pollution.

The numerous abandoned mine sites in the planning area present both physical and hazardous materials concerns. Unstable, unreclaimed mine waste dumps could be transporting mine pollutants (e.g., heavy metals, radionuclides, and chemicals) via wind and water into watersheds, contributing to surface and ground water degradation. Exposed mine openings, emitting chemically toxic and/or radioactive gases, continue to be potential public hazards. Abandoned, and highly unstable, mining explosives may be present. Access roads, mineral exploration roads, and trails could be sources of sediment runoff, posing a potential threat to water quality. Mining drill holes located on or near these access ways could pose a threat to physical safety and could provide a pathway for pollutants to enter ground water (UDOGM 2000).

Mineral development within the Moab FO planning area has the potential to increase the potential for hazardous materials spills. Spills may originate from tanks, pipelines, or tanker trucks. However, minerals operations are required to comply with hazardous materials regulations that reduce the potential for spills and provide guidelines for management and spill cleanup.

5.6 MANAGEMENT OPPORTUNITIES AND LIMITATIONS

5.6.1 Geographical Information System (GIS)

The use of GIS could aid in consolidating information regarding hazardous materials within the FO management area, which could assist the Moab FO in managing these materials. The use of federal and state databases could also help the BLM hazardous materials coordinator remain aware of small businesses that could potentially create or use hazardous materials within the planning area. These databases also contain information regarding hazardous materials storage, use, production, and violations.

5.6.2 Abandoned Mine Lands

The following AML criteria should be established to assist in determining priorities for site and area mitigation and reclamation. The criteria that could be used to establish physical safety hazard program priorities are:

- AML physical safety. The highest priority will be the cleaning up of those AML sites where (a) a death or injury has occurred; (b) the site is situated on or in the immediate proximity to developed recreation sites and areas with high visitor use; and (c) upon formal risk assessment, a high or extremely high-risk level is indicated;
- AML will be factored into future recreation management area designations, land use planning assessments, and all applicable use authorizations;
- The site is presently listed or is eligible for listing in the Abandoned Mine Land Inventory System (AMLIS); and
- AML hazards should be to the extent practicable, mitigated, or remediated on-the-ground during site development.

The criteria used to establish water quality-based AML program priorities are:

- The State has identified the watershed as a priority based on (a) one or more water quality standards being violated; (b) violation of Federal or State water quality law or regulations; (c) a threat to public health or safety; or (d) a threat to the environment;
- The project reflects a collaborative effort with other land managing agencies; and
- The project will be funded by contributions from collaborating agencies.

These priorities will be maintained and updated as needed in the state AML strategy, and coordination between the Moab FO and the State Office AML program lead should be pursued when setting AML program priorities.

5.6.3 Illegal Dumping

The Moab FO will continue appropriate responses to illegal dumping of hazardous materials (see paragraph 5.1.6) through law enforcement response, hazardous materials response procedures, and contractor personnel. Any response to hazardous materials incidents would be in conformance with approved plans and procedures.

5.6.4 Hazardous Waste Disposal

The Moab FO will continue to ensure that lessees, permittees, and operators on land within the FO planning area are in compliance with all laws and regulations that pertain to hazardous materials.

5.6.5 Hazardous Materials Plans

Ensure that the HMICP and the HAZCOM Program Plan are maintained. The plans should be periodically reviewed by the Moab FO safety officer, and updated as needed, to maintain them in compliance with all applicable laws and regulations that pertain to hazardous materials.

5.7 REFERENCES

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